



A new species of the genus *Circulus* (Gastropoda, Adeorbidae) from West Africa

Una nueva especie del género *Circulus* (Gastropoda, Adeorbidae) de África occidental

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ABSTRACT

A new species of the genus *Circulus* Jeffreys, 1865, *Circulus stephani* spec. nov., is described collected from material of sediment obtained in dredgings from Ghana. The new species is compared with other of the genus from European and West Africa.

RESUMEN

Se describe una nueva especie del género *Circulus* Jeffreys, 1865, *Circulus stephani* spec. nov., obtenida de sedimentos dragados en Ghana. La nueva especie se compara con otras pertenecientes al mismo género de Europa y África.

KEY WORDS: *Circulus*, Adeorbidae, West Africa, new species.

PALABRAS CLAVE: *Circulus*, Adeorbidae, África occidental, nueva especie.

INTRODUCTION

In recent years there have been a substantial number of works on the small molluscan fauna of West Africa but up to the middle of the last century practically nothing was known about these species. One of the earliest and most important works on such small species has been ADAM AND KNUDSEN (1956), which among others, has made reference to the genus *Circulus* Jeffreys, 1865. Thereafter there have been four references to this genus in West Africa which are: *Circulus* cf. *striatus* (Philippi, 1836) recorded in BERNARD (1984), *Circulus* sp. mentioned from Angola by GOFAS, PINTO AFONSO AND BRANDÃO (1985); *Circulus striatus* cited by São Tomé by FERNANDES AND ROLÁN (1993) and then several species of the genus *Circulus* listed by ROLÁN AND RYALL (1999) in their check-list of the Angolan marine molluscs.

PONDER (1988) and PONDER AND WARÉN (1988) placed the genus *Circulus* close to Tornidae Sacco (1896).

The authors have collected numerous sediment samples from the area which have yielded several species of the genus *Circulus* Jeffreys, 1865 appeared. One of these is evidently a new species which is now described in this work.

Abbreviations

AMNH American Museum of Natural History, New York
MNCN Museo Nacional de Ciencias Naturales, Madrid
MNHN Muséum National d'Histoire Naturelle, Paris
CER collection E. Rolán
CPR collection P. Ryall

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RESULTS

Superfamily RISSOOIDEA Gray, 1847
Family ADEORBIDAE Monterosato, 1884
Genus *Circulus* Jeffreys, 1865

Type species: *Circulus striatus* (Philippi, 1836) by original designation.

Circulus stephani spec. nov. (Figs. 1-6)

Type material: Holotype (Fig. 1) in the MNCN; paratypes in the following collections: AMNH (1)(Fig. 3), MNHN (1)(Fig. 2), BMNH (1)(Fig. 4), CER (27)(Fig. 5), CPR (5), all from the type locality.

Other material studied: Ivory Coast: 6 shells, 3 juvenile, Radiale Grand Bassam, Exp. Benchaci I, Sta. 12D, 30 m, 5° 09.2' N, 3° 47.1' W (MNHN); 1 shell, Radiale Grand Bassam, Exp. Benchaci I, Sta. 13D, 35 m, 5° 08.9' N, 3° 48.6' W (MNHN); 1 shell, Radiale Grand Bassam, Exp. Benchaci I, Sta. 14D, 40 m, 5° 07.7' N, 3° 46.2' W (MNHN). Ghana: 4 shells, 7 juvenile, 5 fragments, Miamia, 38-40 m; 2 shells, 5 juvenile, Cape Three Points, 35-60 m. Angola: 1 shell, Cabinda, West Landana, N/O "André Nizery", Sta. 934, 25 m 5° 10.5' S 11° 59' E (MNHN).

Type locality: Miamia, Ghana, in dredging between 38-40 m.

Etymology: The specific name is after Stephan Ryall, the youngest son of the junior author who soon eagerly and enthusiastically assisted him with a large number of dredgings made off Ghana.

Description: Shell (Figs. 1-5) small, solid, circular, depressed, nearly flat-spired, not nacreous, whitish. Protoconch (Fig. 6) with $2\frac{3}{4}$ whorls, smooth, increasing slowly, and with a diameter of about 740 μm . Teleoconch with about $1\frac{1}{2}$ whorls, bearing three pronounced ridges; the first and highest is on the dorsal part between the suture and the periphery; the second is at the periphery; the third and lowest is situated between the periphery and the base and extends to form a keel. Umbilicus very wide and deep through which the previous whorls can clearly be seen. Aperture with a rectangular shape, is obliquely positioned in relation with the shell's axis, internally scarcely thickened, and with a sharp border which bears the elongated protruding ridges.

Dimensions: The holotype has a maximum diameter of 2.1 mm. The largest shell is 2.2 mm.

The soft parts are unknown.

Distribution: The species is known from Ivory Coast to Landana, Angola. Apparently it is not present in the islands of the Gulf of Guinea.

Discussion: Due to the lack of soft parts and information on the animal the assignment of the present species to the

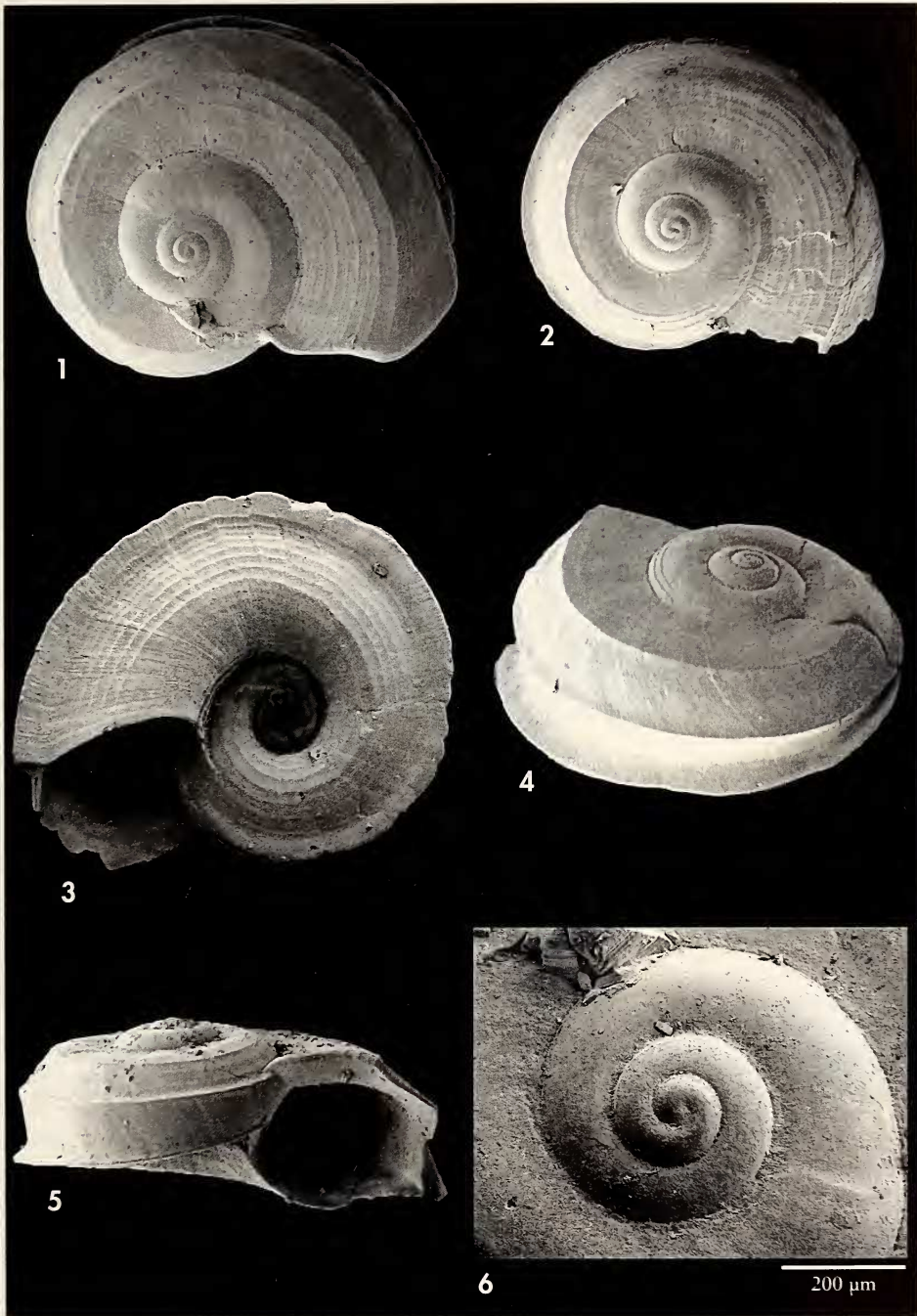
genus *Circulus* has been tentative but in our opinion is the best option due to the shell's strong similarity to other members of this genus in the West Africa area. The general shape is similar to most of them; spiral striations are present in both *C. striatus* (Philippi, 1836) and in *C. smithi* Bush, 1897; peripheral ridges occur in both *C. smithi* and in *C. pseudopraecedens* Adam and Knudsen, 1969. However these other species exhibit a small subperipheral keel and other constant differences are observed as follows:

C. striatus has a more prominent spiral sculpture and more rounded whorls, and its base is almost smooth.

C. pseudopraecedens bears no spiral threads and the most prominent ridge with a keel is on the periphery and is larger than the subperipheral ridge.

C. smithi has a stronger spiral sculpture with the ridges in a higher position on the whorl becoming weaker towards the subperiphery.

We have considered and rejected the possibility that the present species could be a form of these other known species or perhaps evidence deformed shells. This is because in more than 60 shells we have compared with similar quanti-



Figures 1-6: *Circulus stephani* spec. nov.; 1: holotype, 2.1 mm (MNCN); 2: paratype, 1.7 mm (MNHN); 3: paratype, 2.0 mm (AMNH); 4: paratype, 1.6 mm (BMNH); 5: paratype, 2.1 mm (CER); 6: protoconch of the holotype.

Figuras 1-6: Circulus stephani spec. nov.; 1: holotipo, 2,1 mm (MNCN); 2: paratipo, 1,7 mm (MNHN); 3: paratipo, 2,0 mm (AMNH); 4: paratipo, 1,6 mm (BMNH); 5: paratipo, 2,1 mm (CER); 6: protoconcha del holotipo.

ties of the other species and we have observed that shell characteristics are constant with no intermediate forms.

This is further confirmed by other differences noted such as the spiral sculpture and protoconch whorls.

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